

CLAIMS

1. Lithography apparatus comprising a lithography tool housed in a first chamber, a source of radiation at or below ultra violet wavelengths housed in a second chamber connected to the first chamber to enable radiation generated by the source to be supplied to the tool, means for supplying target material to the source, and pump means in fluid communication with the second chamber for drawing a gaseous flow from the second chamber and conveying the drawn flow to cryogenic purification means for recovering the target material from the flow for subsequent re-supply to the source, wherein at least one of the first and second chambers is in fluid communication with a cryogenic vacuum pump, the apparatus comprising a cryogenic refrigerator for supplying cryogen to the cryogenic purification means and to the or each cryogenic vacuum pump.
2. Apparatus according to Claim 1, wherein the first chamber contains a cryogenic vacuum pump.
- 20 3. Apparatus according to Claim 1 or Claim 2, wherein the second chamber contains a cryogenic vacuum pump.
4. Apparatus according to any preceding claim, wherein the pump means comprises a transfer pump, such as a turbomolecular pump.
- 25 5. Apparatus according to Claim 4, wherein the transfer pump has an inlet for receiving a purge gas for mixing with the drawn flow, the cryogenic purification means being arranged to receive the mixed flow from the transfer pump and to separate the purge gas from target material contained in the drawn flow.

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6. Apparatus according to any preceding claim, wherein the cryogenic refrigerator comprises one of an autocascade refrigerator, a Stirling engine refrigerator, a pulse-tube refrigerator and Joule-Thomson refrigerator.

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7. Apparatus according to any preceding claim, wherein the target material is xenon.

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8. Apparatus according to any preceding claim, wherein the radiation is extreme ultra violet radiation.

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9. Extreme ultra violet (EUV) lithography apparatus comprising a lithography tool housed in a first chamber, a source of EUV radiation housed in a second chamber connected to the first chamber to enable EUV radiation generated by the source to be supplied to the tool, means for supplying xenon to the source, and pump means in fluid communication with the second chamber for drawing a gaseous flow from the second chamber and conveying the drawn flow to cryogenic purification means for recovering xenon from the flow for subsequent re-supply to the source, wherein at least one of the first and second chambers is in fluid communication with a cryogenic vacuum pump, the apparatus comprising a cryogenic refrigerator for supplying cryogen to the cryogenic purification means and to the or each cryogenic vacuum pump.

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10. Extreme ultra violet (EUV) lithography apparatus comprising a plurality of lithography tools each housed in a respective first chamber, one or more sources of EUV radiation each housed in a respective second chamber, at least one of the chambers being in fluid communication with a cryogenic vacuum pump, means for supplying xenon to the second chamber(s), means for supplying EUV radiation generated from the xenon by the source(s) to the tools,

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means for conveying a gaseous flow output from the second chamber(s) to cryogenic purification means for recovering xenon from the flow for subsequent re-supply to the source(s), and a cryogenic refrigerator for supplying cryogen to the cryogenic purification means and to the or each cryogenic vacuum pump.

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11. Lithography apparatus substantially as herein described with reference to the accompanying drawing.

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